THE IDENTITY OF *Helicarion freycineti* FERUSSAC (MOLLUSCA:PULMONATA)

by

Ron C. Kershaw
Hon. Research Associate, Queen Victoria Museum, Launceston.
Hon. Associate, National Museum of Victoria, Melbourne.

INTRODUCTION

Helicarion freycineti was the second of the two species associated generically by Ferussac (1821). Although *H.cuvieri* Ferussac was widely believed to be the type of the genus, Kennard (1942) has suggested that *H.freycineti* was selected by Thon (1829). This matter will require attention in future work. The object of this paper is to confirm the identity of *H.freycineti* Ferussac as accurately as possible.

Ferussac stated (1821, p.20): "We do not recognise the shell of this species: the animal is larger than that of the preceding species, greyish yellow in colour; blackish above the posterior part; marked anteriorly on the sides with spots and blackish lines." Thon (1829), who discussed *H.freycineti* in some detail, stated that the shells broke during the journey from Port Jackson "because they were so thin."

A description of the shell recently credited to Ferussac by Kershaw (1979) was provided by Deshayes (Kennard, 1942). A translation of this description was provided by Kershaw (1979) who erected a lectotype from syntype material. The nabitat was not in doubt as Ferussac stated: "Habit. The area around Port Jackson in New Holland whence this species was brought by the naturalists of the expedition of Captain Freycinet" (i.e. Quoy and Gaimard). But as Ferussac did not describe the shell and his animal description was generalised, it has been considered essential to ensure that the species is now correctly recognized.

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The material studied and described by Kershaw (1979) by courtesy of Dr. Tillier of Paris Natural History Museum consisted of animals collected by Quoy and Gaimard at Port Jackson in 1819 and separate animals and shells collected by them at Botany Bay in 1829.

It now seems apparent that the 1819 animals were those studied by Ferussac and the shells had been removed (or broken). Kennard (1942) has made clear that the appropriate plate in Ferussac's Histoire (commenced 1819) was Plate 9a published 10th November, 1821. Although this removes some doubt concerning the fate of the 1819 animals it does not follow that the source of Ferussac's figured material is clarified.

The 1829 material became part of the Ferussac collection and was probably studied by Deshayes. There was no animal complete with shell among this material when it was

received from Paris. Hence it was important that a complete specimen should be compared with the Paris material to confirm its status and provide a basis for further comparisons. Appropriate material from Blackheath, west from Sydney, preserved in the National Museum of Victoria, was studied and dissected for this purpose.

Nevertheless, as Iredale (1941) described *H.freycineti* with "the sides of the foot red, a noticeable feature" the matter was not considered finalised. Such colours have been found unstable in preservative. But Iredale considered the animal to be grey. The body colour of the preserved animals collected by Quoy and Gaimard in 1819 and 1829 was described as "pale buff almost khaki" by Kershaw (1979). This concept of a colour between cream and yellow was recently checked again using colour slides of these animals in view of continued uncertainty.

Mr. Michael Shea, a well known Sydney collector, has provided (pers.comm.) the following information:

"All the animals of *Helicarion freycineti* I have seen from Sydney are a greyish colour with darker grey veins. Some have reddish mucous around the edge of the foot. I have not seen any that were a buff colour" (14 August 1980).

"*H.freycineti* has a speckled grey animal with darker grey lines on the foot. There is a reddish border around the foot and the mantle lobes have a slight reddish tinge to them" (22 November 1981).

"*H.freycineti* are creamish with grey on the dorsal surface —when I first collected these, the living specimens were an overall speckled grey-brown with a reddish line around the edge of the foot and on the mantle laps — these colours faded after the snails were drowned and faded even more after being placed in alcohol." (12 May 1982).

These comments are relevant because they indicate not only the observed features of *H.freycineti* but they show consistency of observation. Furthermore, Mr. Shea has made a careful study of distribution of *Helicarion* species of the Sydney district and has compared shells with the Australian Museum collections.

Preserved material sent by him from Mulgoa, south-west from Sydney, was closely studied. This material was compared with *Helicarion* material from the collections of the National Museum of Victoria. Comparisons have also been made with other *Helicarion* species sent by Mr. Shea and Mr. V. Kessner. The Mulgoa material believed to be *H.freycineti* was found to be closely comparable with the Quoy and Gaimard material in Paris. The animal is smaller, the colour features intermediate but no detail suggested rejection. Dissection of this material proved it to be conspecific with that from Blackheath in the National Museum of Victoria mentioned above.

It was considered desirable to study freshly collected material to widen the base of this enquiry. Mr. Shea sent material collected on the 12th May, 1982 and this was studied and dissected by the writer in Launceston a few days later. In addition to his remarks quoted above, the following observations made on receipt may be added.

A distinct pinkish tinge remained evident about the caudal horn but the remainder of the animal was a creamy tint dominated by dark grey. Blotches and spots were present particularly on the mantle and lappets.

Again the shells and animals proved conspecific with material already studied and considered to be *H.freycineti.* The data obtained from these studies compare satisfactorily with Ferussac's description quoted above. In addition these data can include Iredale's (1941) brief comments. The shell dimensions have proved to be almost identical with those of the third shell sent from Paris (Kershaw, 1979). The main difference is that a Mulgoa shell is slightly higher. The ribs on the lectotype shell appear to be slightly bolder than those of Mulgoa shells. Such variation is not uncommon with shells of *Helicarion* species in Australia.

A range of material of *Helicarion freycineti* and of other *Helicarion* species has been

studied. Observations have been made on freshly preserved animals and on animals preserved for different periods of time. Changes occur in the preserved animals which are not only morphological but also may be superficial. Thus the beautifully coloured *H.rubicundus* Dartnall and Kershaw fades rapidly to off-white when it resembles, at first sight, white forms of *H.cuvieri* Ferussac. In the case of *H.freycineti* Ferussac the animal becomes brownish cream or deep cream with liberal distribution of grey tones. Ultimately a deep cream appearance may dominate but no doubt potential variation between populations must refute any idea of absolutely consistent colours in preserved material.

The species *Helicarion freycineti*, collected by the French naturalists Quoy and Gaimard from populations now very sparse or extinct, has been shown to be still present in the region surrounding Sydney, New South Wales. It is considered that recognition of the species has been consistent since it was first collected. It is hoped that data concerning the anatomy, variation and distribution of the species will be included in a future paper.

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